

CLAIMS

WHAT IS CLAIMED IS:

1. Apparatus for compressing tissue to be scanned for medical imaging, said apparatus comprising:

a compression membrane; and

a tensioning apparatus coupled to said membrane to apply a tensile force to said membrane to place said membrane in a taut condition during an imaging process.

2. The apparatus of claim 1 further comprising a support frame configured to support at least one end of said compression membrane.

3. The apparatus of claim 2 wherein said support frame further supports said tensioning apparatus.

4. The apparatus of claim 2 wherein said tensioning apparatus comprises at least one tensioning device situated on one side of the frame, and configured to apply tensile force along an axis perpendicular to said frame side.

5. The apparatus of claim 4 wherein said tensioning device comprises a movable tension plate responsive to a mechanical command for applying the tensile force.

6. The apparatus of claim 4 wherein said tensioning device comprises an inflatable bladder responsive to one of the following commands for applying the tensile force: a hydraulic command and a pneumatic command.

7. The apparatus of claim 1 wherein said compression membrane has a thickness not exceeding 0.5 mm.

8. The apparatus of claim 1 wherein said compression membrane comprises a polymeric material.

9. The apparatus of claim 1 wherein said tissue comprises breast tissue and said imaging process is selected from the group consisting of ultrasound and X-ray mammography.

10. The apparatus of claim 1 wherein said tensioning apparatus comprises means for applying a respective tensile force to said compression membrane along a pair of mutually orthogonal axes that define a plane at least over a portion of said compression membrane.

11. The apparatus of claim 10 wherein said means for applying the tensile force along said orthogonal axes include means for independently adjusting the magnitude of the tensile force along each of said orthogonal axes, thus allowing to compensate for variation in size and/or shape of the tissue to be compressed.

12. A method for compressing tissue to be scanned for medical imaging, said method comprising:

providing a compression membrane; and

applying a tensile force to said membrane to place said membrane in a taut condition during an imaging process.

13. The method of claim 12 wherein said applying of the tensile force to the compression membrane comprises applying a respective tensile force to said compression membrane along a pair of mutually orthogonal axes that define a plane at least over a portion of said compression membrane.

14. The method of claim 13 wherein the applying of a respective tensile force along said orthogonal axes further comprises independently adjusting the magnitude of the tensile force along each of said orthogonal axes, thus allowing to compensate for variation in size and/or shape of the tissue to be compressed.

15. Medical imaging equipment comprising:
apparatus for compressing tissue to be scanned during an imaging process, said apparatus comprising:
a compression membrane; and
a tensioning apparatus coupled to said membrane to apply a tensile force to said membrane to place said membrane in a taut condition during an imaging process.

16. The medical imaging equipment of claim 15 wherein said tissue comprises breast tissue and said imaging equipment is selected from the group consisting of ultrasound imaging and X-ray mammography.

17. The medical imaging equipment of claim 15 wherein said tensioning apparatus comprises at least two tensioning devices arranged on a support frame to apply a respective tensile force to said compression membrane along a pair of mutually orthogonal axes.

18. The medical imaging equipment of claim 17 wherein each of said tensioning devices include a respective tension adjuster for independently adjusting the magnitude of the tensile force along each of said orthogonal axes, thus allowing to compensate for variation in size and/or shape of the tissue to be compressed.

19. The medical imaging equipment of claim 16 wherein each tensioning device comprises a movable tension plate responsive to a mechanical command for applying the tensile force.

20. The medical imaging equipment of claim 16 wherein each tensioning device comprises an inflatable bladder responsive to a hydraulic command for applying the tensile force.

21. The medical imaging equipment of claim 15 wherein said compression membrane has a thickness not exceeding 0.5 mm.

22. The medical imaging equipment of claim 15 wherein said compression membrane comprises a polymeric material.